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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,076	01/27/2005	Bo Bijlenga	43315-205324	3114
26694	7590	01/17/2006	EXAMINER	
VENABLE LLP P.O. BOX 34385 WASHINGTON, DC 20045-9998			AMAYA, CARLOS DAVID	
			ART UNIT	PAPER NUMBER
			2836	

DATE MAILED: 01/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

H.A

**Office Action Summary**

Application No.

10/501,076

Applicant(s)

BIJLENGA, BO

Examiner

Carlos Amaya

Art Unit

2836

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --****Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 07/09/2004.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1,3,5-7,9,10,12 and 13 is/are rejected.
- 7) ☒ Claim(s) 2,4,8,11,14 and 15 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 09 July 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 01/27/2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Drawings***

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

2. This application does not contain an abstract of the disclosure as required by 37 CFR 1.72(b). An abstract on a separate sheet is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

The changes made to 35 U.S.C. 102(e) by the American Inventors Protection Act of 1999 (AIPA) and the Intellectual Property and High Technology Technical Amendments Act of 2002 do not apply when the reference is a U.S. patent resulting directly or indirectly from an international application filed before November 29, 2000. Therefore, the prior art date of the reference is determined under 35 U.S.C. 102(e) prior to the amendment by the AIPA (pre-AIPA 35 U.S.C. 102(e)).

4. Claims 1, 3, 5, 9-10, 12-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Björklund (US 6,411,067).

With respect to claim 1 Björklund discloses the Equipment for exchanging power, in shunt connection, with an electric power network, the power network (Transmission lines 1) having a nominal voltage (Provided on transmission line 1) of a fundamental frequency and a given phase position (Phase 1a, 1b, 1c of transmission line 1), the equipment comprising a reactive impedance element (Reactor 9 for VSC 3 and Reactor 10 for VSC 5, Figure 1) and a voltage source converter (Figure 1 VSC 3 and VSC 5) for mutual connection in series (Figure 2 shows the two VSC connected in series with an inductor to each of the three phases of the transmission lines), the converter being intended for generation of a fundamental voltage within a control range (PWM controls the operation of the VSC Column 5 lines 3-9, Control unit 60 could also control the VSC Column 6 lines 46-48) that limits the amplitude of the generated fundamental voltage, wherein the control range of the converter limits the amplitude of the fundamental voltage to a value that is lower than the nominal voltage of the power network (Column 5 lines 3-14) and comprises generation of a reactive component (Column 2 lines 5-6) of

the fundamental voltage with a phase position (Column 5 lines 9-12, Column 2 lines 1-6) that either coincides with the phase position for the voltage of the power network or that deviates by 180 electrically from the phase position for the voltage of the power network.

With respect to claim 3 Björklund discloses the Equipment according to claim 1, characterized in that the reactive impedance element consists of an inductor (Element 9 and 10 Figures 1 and 2).

With respect to claim 5 Björklund discloses the Equipment according to claim 1, wherein the control range (PWM controls the operation of the VSC) of the converter comprises in addition thereto, generation of an active component of the fundamental voltage with a phase position (Column 5 lines 8-9) that deviates from the phase position for the voltage of the power network by +90 electrically or by -90 electrically and with an amplitude that brings about an exchange of active power with the power network (Column 5 lines 11-12).

With respect to claim 9 Björklund discloses the equipment for exchanging power, in shunt connection, with an electric power network as claimed in claim 1. One skilled in the art would necessarily perform the recited method steps of claim 9 when using the equipment disclosed above, to perform the functions of the VSC to generate a desired voltage to exchange reactive power with power network.

With respect to claim 10 Björklund discloses the equipment as recited in claim 5. One skill in the art would necessarily perform the recited method steps when using the equipment as described in claim 5.

With respect to claim 12 Björklund discloses the equipment according to claim 1 for exchange of reactive power with an electric power network (Column 2 lines 9-12).

With respect to claim 13 Björklund discloses the equipment of claim 3, which would necessarily result in providing the recited results.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 6, 7 rejected under 35 U.S.C. 103(a) as being unpatentable over Björklund in view of Angquist (US 2004/0052015).

With respect to claim 6 Björklund discloses the equipment of claim 1 as set forth in the 102 rejection above, however, does not disclose expressly that the control system controls the fundamental voltage generated, in dependence on electric variables sensed in the power network.

Angquist, however, discloses a control equipment 2 that produces a signal QCR in response of the sensed voltage  $V_{abc}$ , this signal is then supplied to the device 1 that controls the consumption and generation of reactive power (see Figure 1)

At the time of the invention, it would have been obvious to a person of ordinary skill in the art, to insert a control unit in Björklund's invention that senses a voltage in the network.

The suggestion or motivation for doing so would have been to change the values generated by VSC in Björklund's invention, with respect to a sense value of Angquist controller in the power network to provide flexibility and to improve accuracy or precision of the power factor correction.

With respect to claim 7 Björklund in view of Angquist discloses the equipment of claim 6. Björklund discloses that the VSC produced active and reactive power (Column 2 lines 5-6). Björklund, however, does not disclose that the control system comprises means for forming a reference value for the current of the converter, in dependence on a voltage variation sensed in the power network; and that the reference value results in an active and a reactive component of the fundamental voltage. Angquist, however, discloses the control equipment 2 generates a reference value QCR depending upon a sense signal in the network, this signal being supplied to the VSC (Figure 4) for generation of QVSC power.

***Allowable Subject Matter***

7. Claims 2,4,8,11,14-15 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.
8. Claim 2 is allowable over the prior art of record, because the prior art of record does not disclose or suggest that, "the reactive impedance element comprises a capacitor".

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9. Claim 4 is allowable over the prior art of record, because the prior art of record does not disclose or suggest "a transformer is connected between the inductor and the converter".

10. Claim 8 is allowable over the prior art of record, because the prior art of record does not disclose or suggest "a signal processing member with a phase-advancing characteristic in a frequency interval surrounding the frequency 8.8 Hz which is supplied with said value of active power flow in the power network, and means for forming the reference value for the current of the converter in dependence on an output signal from said signal-processing member."

11. Claim 11 is allowable over the prior art of record, because the prior art does not suggest "a signal processing member with a phase-advancing characteristic in a frequency interval surrounding the frequency 8.8 Hz, and wherein a reference value for the current of the converter is formed in dependence on an output signal from said signal-processing member, which reference value results in an active component of the fundamental voltage generated by the converter."

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to the examiner's supervisor, Brian Sircus who can be reached on (571)272-2058. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

CA

A handwritten signature in black ink, appearing to read 'Phuong T. Vu', with a long horizontal flourish extending to the right.

**PHUONG T. VU**  
**PRIMARY EXAMINER**